

Outgoing  
M/001/0067

Peter Brinton &lt;peterbrinton@utah.gov&gt;

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**comments tomorrow first thing**

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**Peter Brinton** <peterbrinton@utah.gov>

Fri, Dec 27, 2013 at 9:47 AM

To: Bob Bayer &lt;bob@rjbayerpgeo.com&gt;

Cc: Paul Baker &lt;paulbaker@utah.gov&gt;, David McMullin &lt;DMcmullin@csmining.com&gt;, Ron Wunderlich &lt;rwunderlich@csmining.com&gt;

Hi Bob,

Here's a revised list of Sunrise-related review comments. As I see it, those that are bolded (17 of 40) need to be addressed before we can issue a conditional approval to start mining. We've been discussing almost all of these comments, so there shouldn't be any big surprises, and I think most of them will be really easy to address.

I've tried to simplify and clarify what is being asked for in some cases, and still ask for what is required by rule (such as reporting depths to groundwater by asking you to report the maximum range of depths to groundwater encountered during exploration drilling, which should be available through assumptions about angled holes and the data from the exploration NOI, which I've been looking at in detail). I've also modified some comments related to the impacts discussion, and we still need to have some additional discussion of potential and projected impacts with written explanation of your conclusions. So there will be a few comments that will be trickier, but I think they are doable.

If it's not obvious what is being asked for on the comments, let me know. I am happy to help as I can. I plan to be in for most of the day. Call me at 801-641-8640 if I'm not at my desk or if it's after hours. Let me know if you need digital copies of the exploration permit maps and abandonment report, assuming that's OK with C.S. Mining.

As discussed yesterday, we can be available as soon as Monday to review the modified pages and to issue conditional approval once we receive the comments (Mon pm, probably Tuesday?), and assuming the bond docs are in order (I am pretty sure it is, but will confirm this). We would prefer to approve the entire pit all at once, but are open to issuing a conditional permit for mining to a certain depth if responding to comments is going to take longer than expected for some reason.

Peter

On Thu, Dec 26, 2013 at 9:01 PM, Bob Bayer <bob@rjbayerpgeo.com> wrote:

Thanks, Peter.

Bob Bayer

o: 801-561-4286

c: 801-560-9709

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**From:** Peter Brinton [mailto:peterbrinton@utah.gov]

**Sent:** Thursday, December 26, 2013 5:43 PM

**To:** Bob Bayer

**Subject:** comments tomorrow first thing

Hi Bob,

I'll email my comments over tomorrow morning first thing after I have a chance to look at them with a clearer mind. Til then.

Peter

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Peter Brinton

Environmental Scientist/Engineer II

Utah Division of Oil, Gas & Mining

Office Phone: 801-538-5258

Days: M - Th, Every Other Friday

Hours: 7:30am - 5:00pm

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**REVIEW OF NOTICE OF INTENTION  
TO COMMENCE LARGE MINING OPERATIONS**

**C.S. Mining LLC.  
Hidden Treasure Mine**

**M/001/0067  
December 27, 2013**

**General Comments:**

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
1	General	Submittal should be formatted to easily incorporate additional revisions and amendments.		
2	General	Additional comments from the Division can be generated in the future based on submittals received in the future, every attempt should be made by the Operator to submit a complete NOI the first time around.		
3	Appendix D Figure 3	<p><b><u>Previous Comment 5:</u></b> Detail DT-1 indicates the geotextile is above the tailings, DT-2 shows a typical section of a dike raise and extension of liner. Please provide more details on the HDPE liner, a detail highlighting the existing liner, and the specifications for the liner(s).</p> <p><u>Reply to comment:</u> Done &amp; details pending <u>Follow-up Comment:</u> Please provide new figure 6 for review</p> <p><b>Please provide the Division with a copy of the Ground Water Discharge Permit Application approved by the Department of Environmental Quality in the Appendix. A revised Figure 6 will need to be submitted as a condition of approval.</b></p>	<p>lah</p> <p>CSM lah pnb</p>	

**R647-4-105 - Maps, Drawings & Photographs**

**105.2 - Surface facilities map**

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
4	Figure 13a & 13b	<p><b><u>Previous Comment 48:</u></b> ...Please show any areas in or around the permit boundaries for which the Operator is not responsible. Please state in the text if any such areas exist. This should help reduce confusion in the future about what areas are inside or outside of the permit boundaries.</p> <p><u>Related Comment:</u> Previously impacted areas shown on these two maps and Figure</p>	pnb	

		1 do not represent the disturbance visible on aerial photographs or exploration permit maps. Refer to the most recent aerial photographs and permit maps, and identify the disturbances not yet visible on Figures 13a & 13b (such as the disturbance between the Sunrise haulroad and the previous disturbance on the hill that is shown). Proposed and reclaimed exploration disturbance should also be identified as being permitted and bonded disturbance.		
5	Figures 13a & 13b	<u>Previous Comment 50:</u> Provide additional elevation contours and elevation text for the entire Sunrise area...  <u>Related Comment:</u> Label major contour elevations in the Sunrise pit. Show only the final contours in the area of the pits and dumps.	pnb	
6	13a	<u>Previous Comment 57:</u> Provide cross-sections of the Sunrise pit.  <u>Related Comment:</u> Since the rules do not specifically require cross-sections for pits, but allow the Division to require them, pit cross-sections will be required in the future.	pnb	

### 105.3 - Drawings or Cross Sections (slopes, roads, pads, etc.)

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
7	Figure 15	<u>Previous Comment 20:</u> Provide a hydrology map showing hydrologic structures such as existing (and proposed) water wells, the four monitoring wells downgradient of the tailings, water rights locations, ditches, berms, culverts, watersheds, flow direction of diverted runoff around the mine pits, tailings ponds, waste dumps, buildings, and other areas of disturbance relative to the location of Hickory Wash. Consider expanding the scale of the map to include areas of other future tailings storage facilities. The Division suggests providing multiple maps in order to provide the required detail. This map should be supported with design criteria for all hydrologic structures, including the tailings impoundment, culverts, and ditches, to assure they are designed for peak flow conditions.  <u>Related Comment:</u> A Storm Water Pollution Prevention Plan for the current operations was not provided.  The current SWPPP map does not make sense with regards to drainage ditches and the underlying contour lines shown on the other figures. As examples, some drainage arrows point uphill in the Bawana area, uphill around the Hidden Treasure dump, and appear to point uphill in the Sunrise dump area. Modify accordingly. The yellow polygon in the Bawana area is also incorrect, as it identifies historic dumps as pits. Consider whether it would be more appropriate to show the required information on operation maps.  <b>Since heavy storms are unlikely in the next few months, and since upstream watersheds are small, these comments can be addressed as condition of approval.</b>	pnb, aa  aa  pnb	
8	Figures 12a thru	<u>Previous Comment 55:</u> Geologic lithology and structural maps are needed, and the amount of text required in 106.8 can be reduced with good geological maps.	lah	

[illegible]

## R647-4-106 - Operation Plan

**106.2 - Type of operations conducted, mining method, onsite processing, deleterious materials**

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
12	Page 8, para 3 & Page 10, para 2	The text states that regrading will not be necessary, though page 11 (paragraph 1) states that waste rock dump slopes will be built to a 3h:1v slope using a D8 and D10. Consistent with section 110.2, either modify the statement to acknowledge that grading concurrent with mining will be needed to tie dump lifts together at a 3h:1v slope and to	pnb	

		possibly flatten out end-dumped rock on top of the dump, or remove the references to reclamation and refer to section 110.2 for reclamation details.		
13	Pages 7-9	<b>New Comment:</b> Identify the dump heights and pit depths for the dump and pit designs.	pnb	

#### 106.3 - Estimated acreages disturbed, reclaimed, annually

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
14	Page 25, Table 1	<b>Previous Comment 81:</b> The Sunrise pit and dump acreages listed in Table 1 are different from the pit and dump acreages listed on page 9... Correct the table, ... and the text accordingly.  <b>Revised Comment:</b> The Sunrise pit and dump acreages listed in Table 1 are different from the pit and dump acreages listed in the text on page 9. Correct the table, the map, and the text accordingly. See the related comment in 106.5.	pnb	
15	Page 25, Table 1	<b>New Comment:</b> It appears that the acreage between the Sunrise haul road and the Hidden Treasure permit is not included in the acreage associated with the 3 miles of road reported for the Hidden Treasure haul road. The text (page 70) and aerial photographs indicate that the total haul road length is at least 5.2 miles. Update the table to include the additional acreage.	pnb	

#### 106.4 - Nature of materials mined, waste and estimated tonnages

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
16	Omission	<b>Previous Comment 86:</b> "...Sampling and analysis of the Sunrise deposit using industry standard rock characterization sampling and testing will be needed"  <b>Related Comment:</b> Explain how the provided samples are representative of site conditions. Additional geologic basis needs to be provided to explain how the two samples of waste rock can be used to appropriately characterize the waste rock. Some discussion of rock types would be beneficial.	pnb	
17	Omission	<b>Previous Comment 86:</b> "A summary of chemical analyses, acid-base accounting (ABA), and possibly metal leaching tests should be provided."  <b>Related Comment:</b> Text in 106.9 (page 47) reports that no deleterious leachate is anticipated. Explain why testing for metals leaching has not been done to date. Testing to determine metals leaching may be required as a condition of approval.	pnb	
18	Pages 26-28	<b>New Comment:</b> Identify the methods for the two distinct types of acid base analysis used for the Bawana deposit (Net Carbonate Value) and the Sunrise deposit (Sobek?). Replace the acronyms AGP and ANP on pages 27 and 28 relating to the Sunrise deposit with the acronyms used in the Table 3 (MPA and NP).	pnb	
19	Pages 27 &	Provide the lab analyses for the tabulated ABA data in an appendix.	pnb	

	28, Tables 3&4			
20	Page 28, Table 3	<u>New Comment:</u> Include the calculated net neutralization potential (NNP) and sulfur concentrations in the table, and classify the samples based on the calculated NNP and NPR values.	pnb	
21	Omission	<u>Previous Comment 88:</u> "Discuss characterization findings for future tailings..."  <u>Related Comment:</u> Explain in the text how different types of ore from different pits are not anticipated to generate significantly different types of flotation tailings, and why additional characterization is unnecessary.	pnb	
22	Page 31, para 2	<u>Previous Comment 88:</u> "Discuss characterization findings for future tailings..."  <u>New Comment:</u> Since sulfides are present in the ore prior to processing, and since it is unlikely that all sulfides are removed during flotation (as reported by data in Appendix E-1), modify the absolute nature of the sentence discussing "non-sulfide-bearing ground ore". Further discuss the characterization of the flotation tailings, which have apparently not been acid leached as have the tailings sample analyzed for the ITDF.	pnb	
23	Page 31 & Appendix D	<u>Previous Comment 89:</u> Discuss the results of past analysis of tailings water...  <u>Related Comment:</u> Identify the location and method used to sample the flotation tailings water. Also, provide the water quality sample lab results since they are not found in Appendix D.	pnb	

#### 106.5 - Existing soil types, location, amount

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
24	Page 39, Table 3	<u>Previous Comment 93:</u> Ensure that the Sunrise acreages identified on this table are consistent with any corrected acres on Table 1 (page 21) and any maps.  <u>Revised Comment:</u> Sunrise pit acres are still different in each of Table 1, Table 3, and the text. Sunrise dump acres on Table 1 are different from Table 3 and the text. Correct accordingly. See the related comment in 106.3.	pnb	

#### 106.8 - Depth to groundwater, extent of overburden, geology

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
25	Page 45, Table 7	<u>Previous comment 100a:</u> Define MRL in or below the table, and confirm that the MRL values make sense compared to the measured concentrations. Correct accordingly. Identify the sample and analysis dates if it is not obvious in the missing appendix H.	pnb	
26	Page 33	<u>Previous comment 101:</u> Include a geologic map and cross sections that show structural	lah	

	Page 46	<p>geology noted in the text. Include orientation of geologic units and structural features. As noted above, per R647-4-105.3.16, geologic lithology and structural maps are needed, and the amount of text required in 106.8 can be reduced with good geological maps. The Notice should also include details about unconsolidated or alluvial material above the bedrock. Depth to bedrock contour maps would be helpful. Details about alluvial fill relates to slope stability of highwalls and to ground water issues. Information about the location, size, and nature of the mineral deposit will be kept confidential if marked confidential.</p> <p><u>Reply to comment:</u> maps provided</p> <p><u>Follow-up Comment:</u> Please see comment above regarding figure 12a thru 12e. No orientation data has been provided regarding the structural fabric of the rock units, nor has there been any mention of the groundwater in the areas to be mined. If all mine workings are above the phreatic surfaces, simply state in the NOI - the known elevation of the phreatic surface versus the elevation of the bottom of the pits. The depth to bedrock maps requested have not been provided. All of the information requested is to support the variance. Currently there is no data to support the variance.</p>	pnb	CSM lah
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#### 107.6 - Concurrent reclamation

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
27	Page 53	Indicate that regrading of waste rock dump slopes will be done concurrent with mining, as stated on page 11. Also indicate whether replacement of topsoil on and ripping of the graded dumps will be done concurrently.	pnb	

#### R647-4-109 - Impact Assessment

##### 109.1 - Impacts to surface & groundwater systems

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
28	Omission	<p><b><u>Previous Comment 95:</u></b> Please provide statements clearly identifying projected impacts of mining activities on surface and groundwater systems. The Division will need to re-evaluate this section upon receipt of the groundwater discharge permit...</p> <p><b><u>Current Comment:</u></b> No clear statements regarding anticipated impacts (or lack thereof) have been made with regards to surface and groundwater systems. Please provide statements clearly identifying any projected impacts to groundwater quality and quantity, and associated mitigation for any such impacts. Discuss impacts associated with any potentially deleterious materials. Indicate whether groundwater is anticipated to be encountered during the Sunrise pit, and discuss related impacts (or lacks thereof) that are projected.</p>	pnb	
29	Page 56, para 2	Indicate that flows from the Sunrise and Bawana areas flow to the east of the Beaver River, instead of to the Hickory Wash.	pnb	

##### 109.3 - Impacts on existing soils resources

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
30	Omission	<p><b>Previous Comment 124:</b> Summarize the projected impacts of mining activities on soil resources.</p> <p><b>Current Comment:</b> While mitigation efforts have been discussed, no clear statements regarding any anticipated impacts (or lack thereof) have been made with regards to soil resources. Please provide statements clearly identifying any projected impacts in the Sunrise area (at least).</p>	pnb	

#### 109.4 - Slope stability, erosion control, air quality, safety

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
31	Omission	<p><b>Previous Comment 125:</b> Statements identifying projected impacts of mining activities ... have not been provided in all cases.</p> <p><b>Current Comment:</b> No clear statements regarding any anticipated impacts (or lack thereof) have been made with regards to slope stability, erosion control, air quality, and safety. Please provide statements clearly identifying any projected impacts in the Sunrise area (at least).</p>	pnb	
32	Page 43-45	<p><b>Previous Comment 126:</b> Please provide documentation for pit slope stability, include geomechanical data for each rock type, geotechnical data for each soil type for each pit. Include structural geologic data on map and cross sections. Refer to Section 112 if information required for a variance is provided.</p> <p><b>Reply to comment:</b> addressed</p> <p><b>Follow-up Comment:</b> Please submit documentation (as requested in comment above) for variances granted on September 4, 2012.</p>	lah, aa  CSM lah	
33	Page 63	<p><b>Previous Comment 127:</b> Refer to the variance section for a discussion of any justifications for allowing the Bawana and Sunrise pits to remain steeper than 45 degrees. Only the Hidden Treasure pit has been granted a variance to date.</p> <p><b>Current Comment:</b> Refer to the variance section for the justification for the variance.</p>	pnb	
34	Page 63, para 4	Please complete the incomplete sentence: "The discontinuous..."	pnb	

#### R647-4-110 - Reclamation Plan

#### 110.2 - Roads, highwalls, slopes, drainages, pits, etc., reclaimed

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
	Page 69	New Comment: Indicate that backfilling of pits is not planned.	pnb	

35	Page 69, para 3	<b>New Comment:</b> New text states that regrading will not be necessary during reclamation. Modify the statement to acknowledge that either grading and topsoil replacement will be done as part of concurrent reclamation, or that minimal grading and topsoil replacement will be required as part of final reclamation.	pnb	
36	Omission	Identify the side slope acreages associated with each of the mine dumps.	pnb	
37	Page 70, para 1	The plan for reclaiming the flotation tailings pond (assuming reprocessing doesn't occur) is missing the detail listed on page 19 (para 3) that one foot of earthen material will be placed prior to one foot of topsoil placement. Please modify the tailings' reclamation plans accordingly.	pnb	
38	Page 70	Briefly discuss the general anticipated drying times for tailings surfaces.	pnb	

**R647-4-112 - Variance (List all variances requested and make a finding if approving.)**

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
39	Page 55 Para 1  Page 75	<b>Previous comment 148:</b> Please provide geotechnical/geomechanical details to support the variance to leave highwalls steeper than 45 degrees for the Bawana and Sunrise pits...  <b>Reply to comment:</b> Noted <b>Follow-up Comment:</b> CSM to commit to have their engineer of record to review their stability analysis and pit slopes, if any of the actual field parameters of their stability model changes from the input parameters that was used in their stability model during mining of the pits. This includes the geomechanical properties of the rock and/or the phreatic surface. CSM to commit to monitor the highwall stability on a regular basis and notify OGM immediately of any stability problems noted by their engineer of record. All other appropriate agency will be notified as required by each appropriate agency. The Division will be happy to discuss future slope stability requirements.	lah, whw, pnb   CSM lah	
40	Pages 75-76	Refer to the text of the Notice approved on August 8, 2013 requiring reclamation if no agreement with post-reclamation operators of water infrastructure is reached. The Division will continue to require reclamation should a post-reclamation use for the water facilities not exist. Modify the text accordingly.	pnb	